

MANUFACTURING EXTENSION PARTNERSHIP

Success Stories from the Field

Universal Forest Products

Georgia Manufacturing Extension Partnership

Universal Forest Products Improves Bottom Line with Georgia Tech Assistance

Client Profile:

Universal Forest Products (UF) is a manufacturer and distributor of wood and wood-alternative products to retail/dealer, site-built construction, manufactured housing and industrial markets. The company employs 150 people at its facility in Ashburn, Georgia.

Situation:

Assembling wooden roof trusses used in building construction can be a little like putting together a puzzle. Many different parts must first be cut to the right size and shape, then placed into the proper location on the truss. The flow of these parts was a complicated and time-consuming process for workers at Universal Forest Products. After being cut, thousands of parts were first stored in a rack, then moved to a cart which held the components needed for a particular truss. At the end of each work day, the cart was moved to a storage location, then returned to the assembly location when work resumed the next day. It was not uncommon to have as many as 16,000 pieces cut and stored, waiting for assembly. "We didn't have a problem building the trusses -- we build about 9,000 a week, but cutting all those components was challenging," said Lee Matthews, operations manager for the Universal Products. "I was running high in overtime, and we even went as far as putting on a small second shift. We needed a better flow." The company contacted Enterprise Innovation Institute (EII) at the Georgia Institute of Technology for help in analyzing where they could improve work flow in regards to cutting the components for roof trusses.

Solution:

Georgia Tech's Lean specialists, John Stephens and Jennifer Trapp-Lingenfelter met with UFP's management to discuss the facility's issues. They suggested developing a Value Stream Map (VSM) on the entire process of making roof trusses -- from raw material all the way through the finished product. Value stream maps are diagrams used to analyze the flow of materials and information required to bring a product or service to a consumer. "I realized we needed to look at the whole picture, not just the cutting operations," noted Stephens. "This would help identify where the true bottlenecks were forming and why." To identify opportunities for improvement, the team working on the VSM measured how far the individual truss components had to travel and then brainstormed ways to reduce travel time. Matthews initiated the one-piece flow system on one machine and then implement the idea on all of his presses. The Ashburn facility is now the only plant among all of UFP's 80 locations to have one-piece flow. The plant also implemented visual cues for scheduling the various components to be cut.

The Ashburn plant has also seen a decrease in the amount of time it takes to schedule work orders. Before, it would take a production manager approximately two and a half hours each day to schedule the thousands of components needed; now it is done in a matter of minutes as a result of the visual cues. According to Matthews, this has also cut down on the number of mistakes made and improved product quality. Another area greatly impacted by the Lean implementation was in safety. In addition

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to reducing forklift and banding exposure, employees no longer need to climb on tables to load overhead racks and they eliminated loading and unloading above shoulder height.

The VSM project proved to be so successful in the truss area that Matthews decided to conduct a similar project in the finger joint department. Finger joints are made by making a set of complementary rectangular cuts in two pieces of wood, which are then glued. The finger-jointed boards are used in mobile and modular homes and office modular buildings. EII returned to UFP to conduct a VSM for the sales and administration office. The group examined the order process for the plant, including order entry and pricing. Anticipating big benefits from the project, Matthews said, "We developed a sales form that's more consistent that can generate quotes and orders, so we're not duplicating work. This will speed the process up, and allow our sales people to sell the product instead of doing paperwork." As a result of this project, UFP learned how to eliminate overproduction from traditional scheduling systems, produce products based on customer demand, and utilize VSM as a tool to guide implementation efforts.

Results:

- * Reduced work in process by \$30,000.
- * Increased on-time delivery from 77.1 percent to 84.1 percent.
- * Reduced overtime by 20 percent.
- * Improved customer relations.

Testimonial:

"Georgia Tech was able to open everyone's eyes to a different thought process that forced us to recognize the importance of eliminating non-value-added activities. We are ecstatic about what the Georgia Tech team was able to do for us."

Lee Matthews, Operations Manager